

Patent Claims:

1. Method for calculating the lateral force in a motor vehicle with an electromechanical or electrohydraulic steering system, the said method comprising the following steps:
  - recording a steering rod force ( $F_L$ );
  - calculating a total restoring torque ( $M_z$ ) from the steering rod force, with the said restoring torque comprising a restoring torque ( $M_{z,Y}$ ) generated by lateral force ( $F_Y$ ) and other restoring torques ( $M_{z,B}$ ,  $M_{z,R}$ ,  $M_{z,A}$ ,  $M_{z,z1}$ ,  $M_{z,z2}$ );
  - quantitative determination of the other restoring torques based on measured values;
  - subtracting the other restoring torques from the total restoring torque for determining the restoring torque generated by the lateral force; and
  - determining the lateral force ( $F_Y$ ) from the restoring torque ( $M_{z,Y}$ ) generated by the lateral force.
2. Method as claimed in claim 1, characterized in that a transmission ratio ( $i_{L2}$ ) between the steering rod force ( $F_L$ ) and the total restoring torque ( $M_z$ ) is included in the determination of the lateral force.
3. Method as claimed in claim 2, characterized in that the transmission ratio ( $i_{L2}(\delta)$ ) is responsive to the steering angle.

4. Method as claimed in claim 1,  
characterized in that a kingpin  
inclination ( $\sigma$ ) and/or a caster angle ( $\tau$ ) is included  
in the determination of the lateral force ( $F_Y$ ).
5. Method as claimed in claim 1,  
characterized in that the other restoring  
torques comprise a restoring torque ( $M_{Z,R}$ ,  $M_{Z,B}$ ,  $M_{Z,A}$ ,  $M_{Z,z1}$ ,  
 $M_{Z,z2}$ ) generated by rolling resistance ( $F_R$ ), brake force  
( $F_B$ ), driving power ( $F_A$ ), and/or by vertical force.
6. Method as claimed in claim 1,  
characterized in that the steering rod  
force is detected as a force that acts on the left and  
right steering tie rod or as the total steering rod  
force ( $F_L$ ).
7. Method as claimed in claim 1,  
characterized in that the total steering  
rod force ( $F_L$ ) is calculated from a steering torque ( $M_L$ )  
generated by the driver, a steering amplification ( $V_L$ ),  
and a steering ratio ( $i_{L1}$ ).
8. Method as claimed in claim 7,  
characterized in that a steering-angle-  
responsive steering ratio ( $i_{L1}(\delta)$ ) enters into the  
calculation of the steering rod force ( $F_L$ ).
9. Method as claimed in claim 1,  
characterized in that the total steering  
rod force is determined from the motor current and/or  
the motor position of one or more electric motors (8)

of the electromechanical or electrohydraulic steering system.

10. Method as claimed in claim 1,  
characterized in that a sideslip angle is determined from the determined lateral force ( $F_Y$ ).
11. Method as claimed in claim 1,  
characterized in that a coefficient of friction is determined from the determined lateral force ( $F_Y$ ).